WELDING PROCEDURE SPECIFICATION

WPS- 9000-8 **REV. NO.:** 0 **DATE:** 9/3/2004 ****APPLICABILITY****

WELDING PROCESS/ES STUD **and** STUD **ASME:** X **AWS:**

SUPPORTING PQR: 900-8 **OTHER:**

JOINT **This WPS shall be used in conjunction with the General Welding Standards (GWS) and Welding Fabrication Procedure (WFP) sections and criteria for joint details, repairs, NDE, inspection etc.**

Weld Joint Type: STUD **Class:** Capacitor Discharge Stud

See GWS 1-06 for details **Preparation:** Grind or wire brush

Root Opening: N/A **Backing:** N/A

Backgrind root: N/A **Backing Mat.:** N/A

Bkgrd Method: N/A **GTAW Flux:** N/A **Backing Retainer:** N/A

FILLER METALS **Class:** SS 304 Stud **an** SS 304 Stud

A No: 8 **SFA Class:** N/A **and** N/A **F No:** **and** **Size:** # 8 1/4 5/16

Insert: N **Insert Desc.:** N/A **Weld Metal Thickness Range:**

Flux: Type: N/A **Size:** N/A **AWS:** **thru**

Filler Metal Note: Male & Female Studs **ASME:** 0.000 **thru** 0.000

BASE MATERIAL **P No.** 8 **Gr No.** N/A **to: P No.** 8 **Gr No.**

Spec. ASTM A-240 **Grade:** All **to: Spec.** SS 304 Stud **Grade:** All

Pipe Dia Range: **Groove >** 24

Thickness Range: Groove : **AWS:** **thru** **ASME:** 0.040 **thru** 2.000

QUALIFIED POSITIONS 1S, 2S, 4S **Vertical Progression:** N/A

Preheat Min. Temp.: 50 **F** **GAS: Shielding:** N/A **or** N/A

Interpass Max. Temp. **F** **Gas Composition:** 0 **%** 0 **%** 0 **%**

Preheat Maintinance: **F** **Gas Flow Rate cfh:** 0 **to** 0

Backing Gas/Comp: N/A 0 **%**

PWHT: Time @ F Temp **Backing Gas Flow cf** 0 **to** 0

Temp. Range: **F** **to** **F** **Trailing Gas/Comp:** 0 **%**

PREPARED BY Kelly Bingham **DATE:** 9/3/2004

Signature on file at FWO-DECS

APPROVED BY Tobin Oruch **DATE:** 9/3/2004

Signature on file at FWO-DECS

Note:For SC/SS/ML-1/ML-2 work, this WPS requires independent review.

WPS NO: 9000-8

WELDING CHARACTERISTICS:

Current:	DCEP	**and**	DCEP	**Tungsten type**	N/A	**Transfer Mode:**	N/A
Ranges: Amps	12	**to**	30			**Pulsing Cycle:**	0 **to** 0
Volts		**to**				**Background Current:**	0
Fuel Gas:	N/A		**Flame:**	N/A		**Braze temp. F**	0 **to** 0

WELDING TECHNIQUE: **For cleaning, grinding, and inspection criteria refer to Volume 2, Welding Fabrication Procedures**

Technique:	Semi-Auto	**Cleaning Method:**	Wire brush		
Single Pass of Multi Pass:	0	**Stringer or Weave bead (S/W):**	N/A	**Oscillation:**	0
GMAW Gun Angle °:	90 **to** 90	**Forehand or Backhand for GMAW (F/B):**			N/A
Maximum K/J Heat Input		**Travel speed/ipm:**	-	**Gas Cup Size:**	0

PROCEDURE QUALIFIED FOR:

Charpy "V" Notch:	N	**Nil-Ductil Transition Temperature:**	N	**Dynamic Tear:**	N

Comments: This Procedure for autmatically timed capacitive discharged studs. No furrule or flux is used. Arc timing in Sec. #8 =.06, 1/4=.07, 5/16 =.07. Power soures qualified are ESS 500 and PW1000. Lift #8= 1/8, 1/4= 3/16, 5/16= 1/4.

Weld Layer	Manual Process	Filler Metals	Size	Amp Range	Volt Range	Travel ipm	Nozzel Angle	Other
1	**STUD**	**SS 304 Stud**	**# 8**	**12**			**90**	
2	**STUD**	**SS 304 Stud**	**1/4**	**15**			**90**	
3	**STUD**	**SS 304 Stud**	**5/16**	**30**				
4								
5								
6								
7								
8								

REM. * Weld layers are representative only - actual number of passes and layer sequence may vary due to variations in joint design, thickness and fitup.